

2. (Amended) The method of claim 1, wherein said electronically evaluating comprises a method selected from the group consisting of (1) a method of estimating the loss of cartilage in a joint, wherein the joint comprises cartilage and accompanying bones on either side of the joint, which method comprises obtaining a three-dimensional map of the cartilage at an initial time and calculating the thickness or regional volume of a region of degenerated cartilage so mapped at the initial time, obtaining a three-dimensional map of the cartilage at a later time, and calculating the thickness or regional volume of a region of degenerated cartilage so mapped at the later time, and determining the loss in thickness or regional volume of the region of degenerated cartilage between the later and initial times; (2) a method for assessing the condition of cartilage in a joint of a human, which method comprises electronically transferring an electronically generated image of a cartilage of the joint from a transferring device to a receiving device located distant from the transferring device; receiving the transferred image at the distant location; converting the transferred image to a degeneration pattern of the cartilage; and transmitting the degeneration pattern to a site for analysis; (3) a method for determining the volume of cartilage loss in a region of a cartilage defect of a cartilage in a joint of a mammal which method comprises determining the thickness,  $D_N$ , of the normal cartilage near the cartilage defect; obtaining the thickness of the cartilage defect,  $D_D$ , of the region; subtracting  $D_D$  from  $D_N$  to give the thickness of the cartilage loss,  $D_L$ ; and multiplying the  $D_L$  value times the area of the cartilage defect,  $A_D$ , to give the volume of cartilage loss; (4) a method of estimating the change of cartilage in a joint of a mammal over time, which method comprises estimating the thickness or width or area or volume of a region of cartilage at an initial time  $T_1$ ; estimating the thickness or width or area or volume of the region of cartilage at a later time  $T_2$ ; and determining the change in the thickness or width or area or volume of the region of cartilage between the initial and the later times; (5) a method for providing a biochemically based map of joint cartilage of a mammal, wherein the joint comprises cartilage and associated bones on either side of the joint, which method comprises measuring a detectable biochemical component throughout the cartilage; determining the relative amounts of the biochemical component throughout the cartilage; mapping the amounts of the biochemical component in three dimensions through the cartilage; and determining the areas of abnormally joint cartilage by identifying the areas having altered amounts of the biochemical component present; (6) a method of estimating the change of cartilage in a joint, wherein the joint comprises articular cartilage, which method comprises defining a 3D object coordinate system of the joint at an initial time,  $T_1$ ; identifying a region of a cartilage defect within the 3D object

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coordinate system; defining a volume of interest around the region of the cartilage defect whereby the volume of interest is larger than the region of cartilage defect, but does not encompass the entire articular cartilage; defining the 3D object coordinate system of the joint at a second timepoint,  $T_2$ ; placing the identically-sized volume of interest into the 3D object coordinate system at timepoint  $T_2$  using the object coordinates of the volume of interest at timepoint  $T_1$ ; and measuring any differences in cartilage volume within the volume of interest between timepoints  $T_1$  and  $T_2$ ; and (7) a method for correlating cartilage image data, bone image data, and optoelectrical image data for the assessment of the condition of a joint, which method comprises (a) obtaining the cartilage image data of the joint with a set of skin reference markers placed externally near the joint; (b) obtaining the bone image data of the joint with a set of skin reference markers positioned in the same manner as the markers in (a); (c) obtaining the optoelectrical image data of the joint with a set of skin reference markers positioned in the same manner as (a) and (b); and using the skin reference markers to correlate the images obtained in (a), (b) and (c) with each other, wherein each skin reference marker is detectable in the cartilage and bone data and the opto-electrical data.

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10. (Amended) A method of treating cartilage degeneration in a joint, which method comprises:  
obtaining an electronic image of said joint, wherein said image includes both normal and diseased cartilage tissue;  
electronically evaluating said image to obtain information selected from the group consisting of volume, area, thickness, geometry, water content, sodium content, hyaluronic acid content or relaxation time of said normal or diseased tissue; and  
selecting a therapy to treat or replace said degenerated cartilage, wherein said information is used during selection of treatment or replacement therapy of said degenerated cartilage.

Attached hereto is a version showing changes made to the specification and a currently pending claim set.